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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/684,634 | 10/14/2003 | Mark Hirst | 200309672-1 | 3755 |

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| EXAMINER | |
|---|---|
| YAN, REN LUO | |
| **ART UNIT** | **PAPER NUMBER** |
| 2854 | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| | | | |
|---|---|---|---|
| **Office Action Summary** | **Application No.**<br>10/684,634 | **Applicant(s)**<br>HIRST ET AL. | |
| | **Examiner**<br>Ren L. Yan | **Art Unit**<br>2854 | |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) *7-30 and 42-49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,31-34 and 36-41* is/are rejected.

7)☒ Claim(s) *35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *10/14/03*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

## DETAILED ACTION

Applicant's election without traverse of invention Group I, Species drawn to an imaging system with readable claims 1-6 and 31-41 in the reply filed on 6-12-2007 is acknowledged.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 39-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The present disclosure supports the broad concept of using a fuser motor to separate the platen rollers via a cam using the second electrical energy. However, it does not show or describe the structural arrangement necessary that a cam mechanism mechanically coupled to the fuser assembly configured to engage and separate the plate rollers when each of the platen rollers rotates in a reverse direction and configured not to engage and separate the platen rollers when each of the platen rollers rotates in a forward direction. It is not clear from the disclosure how the platen rollers are separated via the cam when they are rotating in a reverse direction. Without the detailed disclosure, one of ordinary skill in the art would not be able make and use the invention.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Suski(5,419,780).

Suski et al teach an apparatus having a thermoelectric generator 50 thermally coupled to an assembly having a member(cooling fan 70), the thermoelectric generator configured to convert heat from the assembly including a heatsink to an electrical energy, and a mechanism comprising a fan motor configured to actuate the cooling fan using the electrical energy. See Figs. 1-5 and column 4, line 51 through column 6, line 26 in Suski et al for details. With respect to claim 6, the thermoelectric generator 50 comprises a Peltier device operating in a seebeck mode.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-5, 31-34, 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negoro et al(5,023,667) in view of Suski(5,419,780) and McLay et al(4,072,825). The patent to Negoro et al teaches an imaging system comprising a power supply configured to provide a first electrical energy having a first parameter level to operate the imaging device, a fuser assembly that generate heat and comprises a pair of opposing platen rollers 81A and 81B supported by a housing and pressed together to form a fusing nip, and a depressurization system comprising a separator mechanism (drive motor 10, gears, cam 83, etc.)mechanically coupled to the fuser assembly and configured to separate the platen rollers, and a controller for controlling the operation of the platen rollers such that the platen rollers are pressed against each other to fix the toner image on the recording paper and are separated from each other when the printer is in a stand-by state. See Figs. 12, 13 and 16, and column 7, lines 3 through column 8, line 32 in Negoro et al for details.

However, Negoro et al do not teach the use of a thermoelectric generator adapted to thermally couple to the fuser assembly and configured to convert heat from the fuser assembly to a second electrical energy and a controller configured to monitor the first electrical energy level and upon detecting the first energy level is less than or substantially equal to a threshold level to cause the separator mechanism to be powered by the second electrical energy to thereby separate the platen rollers.

Suski et al teach in a semiconductor integrated circuit apparatus having a heatsink 60 generates heat, a thermoelectric generator 50 coupled to the heatsink so as to convert waste heat generated by the heatsink of the semiconductor device to electrical energy to operate a cooling fan 70 to cool the heat-generating component so as to reduce power consumption and improve efficiency. See Figs. 1-5 and column 4, line 51 through column 6, line 26 in Suski et al for example. McLay et al teach an automatic control system using a microprocessor 35 as the central control in that an electrical power supply level is sensed by a threshold detector 212 which provides an interrupt output signal by means of an OR gate 207 to the interrupt control signal line 35.C.24, whenever the power supply voltage falls below a predetermined minimum, the RAM network 35.D and the logic elements within the memory interface and interrupt control login 35.C would be alternately powered by the Battery Reserve circuits 55.2 of the power source so as to retain the information stored within the RAM 35.D. See column 61, line 34 through column 62, line 41 in McLay et al for example. It would have been obvious to those having ordinary skill in the art at the time of invention to provide the imaging apparatus of Negoro et al with the thermoelectric generator as taught by Suski et al coupled with the heat generating fuser assembly to convert the waste heat into a second electrical energy to be used to drive the fuser separator mechanism and the electrical power monitoring and power allocating control system appropriately disposed as taught by McLay et al in order to selectively make use of the waste heat generated by the imaging apparatus to drive the separator mechanism and to improve operating efficiency of the imaging apparatus by cutting energy cost. With respect to claims 3-5, 32 and 33, the applied prior art teaches to alternately power the separator mechanism with electrical energy converted from waste heat upon detection of a power failure, which indicates that the threshold power level is equal to zero and the level of electrical energy converted from the waste heat is clearly greater than the level of electrical energy from the power supply during power failure. With respect to claims 6 and 36, Suski et al teach in the last paragraph in column 4 that the thermoelectric generator 50 includes a Peltier device operating in a Seebeck mode. With respect to claims 34 and 38, Suski teaches in Fig. 5 the first surface of the thermoelectric generator is both mechanically and thermally coupled to a housing of the semiconductor device and a second surface is also mechanically and thermally coupled to the heat source to thereby allow removal of the heat source from the apparatus. With respect to claim 37, Fig. 5 of Suski inherently shows a cold junction at the first surface of the thermoelectric generator and a hot junction at the second surface in contact with the heatsink. With respect to claim 39, Figs. 12, 13 and 16 of Negoro et al show the use of a cam mechanism 83 mechanically coupled to the fuser assembly configured to engage and separate the platen rollers 81A and 81B and is driven by an electric motor 10 via a linkage 11.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over the applied prior art as applied to claims 31, 39 and 40 above, and further in view of Derimiggio(4,512,649).

The applied prior art teaches all that is claimed except for separating the platen rollers when the print material is jammed in the fuser assembly and when a switch associated with the first energy level is in an open position.

Derimiggio teaches the very concept of sensing a paper jam in the fuser assembly and separating the fuser rollers by a control unit 48 in response to the jam detecting signal. See Fig. 1 and column 4, lines 24-50 in Derimiggio for example.

It would have been obvious to one of ordinary skill in the art at the time of invention to provide the imaging apparatus of the applied prior art with the sensing and control unit appropriately disclosed as taught by Derimiggio in order to provide an effective way to remove jammed paper and to protect the imaging apparatus from damage by the jammed paper.

Claim 35 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an Examiner's statement indicating allowable subject matter:

Regarding claim 35, the prior art of record does not teach the overall combination of an imaging system as claimed including particularly a heat conductive elastomer positioned between the second surface and the fuser assembly housing and adhered to only the second surface so as to contact the fuser assembly..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ren L. Yan whose telephone number is 571-272-2173. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ren Yan

Ren L Yan
Primary Examiner
Art Unit 2854

Ren Yan
Aug. 15, 2007